PATENT

D0932-0444
[I-8876]

II. Remarks

A. Allowable Subject Matter

Applicants are grateful to the Examiner for recognizing the allowable subject matter in Claims 6 and 44-48 if the §112, ¶ 1 rejection of these claims is overcome.

B. Rejection under 35 U.S.C. §112

The Action rejects Claims 1, 3-6, 8-9, 12, 15-16, 36 and 41-51 as failing to comply with the written description requirement of §112, ¶ 1. The Examiner states that while there is support in the original disclosure for using a glass non-woven tissue for covering the non-woven layer, there is not sufficient support for using tissue for a reinforcing non-woven which is disposed between a pair of insulating layers as recited in the claims. The Examiner states that the "original disclosure fails to reasonably convey to one in the art that the applicant has in possession for using the same material (tissue) for both a covering nonwoven layer and a reinforcing nonwoven web." Reconsideration and withdrawal of this rejection are respectfully requested.

The standard for determining compliance with the written description requirement is "does the description clearly allow persons of ordinary skill in the art to recognize that he or she invented what is claimed." MPEP 2163.02 (quoting *In re Gosteli*, 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989)). "An applicant shows possession of the claimed invention by describing the claimed invention with all of its limitations using such descriptive means as words, structures, figures, diagrams, and formulas that fully set forth the claimed invention." *Id.* (quoting *Lockwood v. American Airlines, Inc.*, 107 F.3d 1565, 1572, 41 USPQ2d 1961, 1966 (Fed. Cir. 1997)).

Applicants submit that the Examiner has conceded that providing a reinforcing layer for a nonwoven web, as originally claimed in the present application, is adequately described in the present application in compliance with the written description requirement, as no objection to the claims as filed was made by the Examiner on this basis. Therefore, the inquiry is whether there

is a written description of this reinforcing layer being the recited "non-woven tissue layer comprising randomly oriented glass fibers" as presently claimed.

FIGS. 5 to 5D clearly show insulation products comprising one or more reinforcing layers disposed between first and second insulation layers. FIG. 6 shows a system and method for manufacturing the products.

By way of example, the following sections from the "Detailed Description of the Invention" section of the present application show that the preferred nonwoven layer for use in the product of FIGS. 5 to 5D and system/method of FIG. 6 is a non-woven tissue layer comprising randomly oriented glass fibers. This layer can be used as covering layer 13 or as reinforcing layer 24, which in some embodiments becomes a covering layer when an insulation section is separated from a modular insulation product (See e.g., FIGS. 5A, 5B, 5D):

- "The nonwoven layer 13 of this invention is preferably formed from a sheet of nonwoven material comprising randomly oriented organic or inorganic fibers, and in a preferred embodiment, randomly oriented glass fibers. **In an exemplary embodiment, nonwoven layer 13 is white glass nonwoven tissue** sold by Lydall Manning Co. of Troy, New York as MANNIGLAS® 1800 or MANNIGLAS® 1801E. The MANNIGLAS® 1800 nonwoven product has a specified density of 19.7-28.3 lb/2880 ft2 and a thickness of about 5.9 mils. The MANNIGLAS® 1801E nonwoven product has a specified density of 19.7-28.3 lb/2880 ft2 and a thickness of about 6.6 mils. Nonwoven materials are sheets of randomly oriented natural or synthetic fibers, such as polyolefins, polyamide (i.e., nylon), polyester or rayon, or glass sometimes secured together by a binder, typically based on a polymeric material, such as an acrylic resin, a vinyl-acrylic resin, or the like. In some nonwovens, such as melt bonded polypropylene, the fibers are joined to each other by a melt bond, without additional resin." (Par. 17)

- "FIG. 5 also shows an intermediate flexible reinforcement layer 24 between mat insulation layers 10a and 10b. In an exemplary embodiment, this layer 24 **is also a nonwoven layer, preferably a glass nonwoven layer, provided within the insulation mat to reinforce the mat and to improve the mat's rigidity, thereby improving its cutability. The layer 24 may be added to the uncured insulation mat in the process of FIG. 3A or 3B described above** by, for example, providing the layer 24 from a roll disposed between fiberizing units 200, which may be included in separate forming stages, such that the layer is introduced at the appropriate location before the mat 111c is introduced to the curing oven 204 for curing." (Par. 32)
- "As shown in FIG. 6, the system includes a plurality of rolls 312a-312f that provide a plurality of layers 310a-310f, respectively. Rolls 312a and 312f preferably provide nonwoven layers 310a and 310f for facing the first and second major surfaces of the ultimate insulation product. As described above, these **facing layers preferably include a nonwoven layer including glass fibers** or other fibers that can withstand the heat of the curing oven. . . . Rolls 312b to 312e provide reinforcing layers 310b to 310e between insulation layers 304, 306 and 308. In one embodiment, each reinforcing layer comprises a nonwoven layer including fibers with a melting temperature above the curing temperature of the curing oven. **The reinforcing layer preferably includes a nonwoven layer comprising glass fibers, as described above**." (Pars. 35-36)
- "From the foregoing, specifically from the description of FIGS. 5-5D and FIG. 6, a reinforced and/or modular insulation product is provided along with a method of manufacturing the same. The insulation product includes at least one reinforcing layer. **In one embodiment, the reinforcing layer can provide added rigidity to the insulation product, thereby facilitating cutting thereof, without increasing binder content (at least significantly) within the insulation layers. Alternatively, the reinforcing layer can serve as a nonwoven facing layer**

after separation of an insulation layer at the reinforcing layer from a stack of insulation layers. The manufacturing method is easily adapted to provide reinforced insulation products having desired R-values and thicknesses. Further, the manufacturing method is easily adapted to provide insulation products that can be separated into one or more sub-products having any combination of number of insulation layers, insulation layer thicknesses and R-values by employing different combinations of insulation layers in the stack and different combinations of reinforcing layers." (Par. 45)

- "It is also contemplated that **the nonwoven layer, for example layers 13 and/or 24, may extend beyond one or more of the lateral edges of the product to form fastening tabs, such as nailing or stapling tabs.** The portion of the nonwoven layers extending beyond lateral edges of the product may be sufficient to allow folding thereof to provide stronger tabs. These embodiments merely require that the nonwoven layer 13, 24 have a width greater than the width of the product." (Par. 47)

It is submitted that the foregoing sections show (i) that the facing layer 13 and reinforcing layer 24 may be nonwoven layers comprising glass fibers, (ii) that an embodiment of the nonwoven layer comprising glass fibers is a nonwoven tissue layer (such as the MANNIGLAS® products available from Lydall Manning Co.), and (iii) that the same glass fiber tissue layer may be used for both covering the product and reinforcing the product.

Accordingly, it is submitted that the invention of Claims 1, 3-6, 8-9, 12, 15-16, 36 and 41-51 is adequately described in the present application in compliance with the written description requirement of § 112, ¶ 1. Reconsideration and withdrawal of this rejection are respectfully requested.

The Examiner also requested guidance as to where support may be found for the following feature recited in Claim 49: "wherein said tissue layer has tensile strength along said

length greater than the tensile strengths of said insulation layers." Applicants do not believe that the Examiner has rejected Claim 49 and 50 on this basis.

In response to the Examiner's request, Applicants direct the Examiner to Paragraph 42 of the application, which recites, for example, that the "insulation product 103 of FIG. 5, like insulation product 103c of FIG. 5C, includes only one reinforcing layer 24 disposed between insulation layers 10a and 10b. . . In this embodiment, reinforcing layer 24 provides structural support for the insulation product and for facilitating cutting of the insulation product across its width or along its length." It is submitted that in order for the layer to provide this structural support for cutting, the described "reinforcing" layer has a greater tensile strength than the insulation layers. This feature is also inherent in the disclosure of specific nonwoven MANNIGLAS® tissue layers. As shown in the Attachment to this Response, the two MANNIGLAS® tissue layers have high tensile strengths in the length direction, specifically 9 lb/in for the 24# MANNIGLAS® 1800 tissue and 6.6 lb/in for the 24# MANNIGLAS® 1801E tissue. It is submitted that one of ordinary skill would understand that these tissue layers have higher tensile strengths in the length direction than, for example, insulation layers disclosed in the application, such as the low density insulation blankets or mats described in the present application. (See e.g., ¶0013). Indeed, even Meier cited by the Examiner and discussed below recognizes that "the relatively low tensile strengths of the [insulation blanket] product offers little resistance to stresses encountered during fabrication and installation." (Column 1, Lines 48-51). Therefore, it is submitted that Claim 49 is fully supported by the present application.

C. Rejection under 35 U.S.C. §103

The Action rejects Claims 1, 3-5, 8-9, 12, 36, 43 and 49-51 as being obvious from newly cited U.S. Patent No. 5,169,700 to Meier et al.

The process of Meier is illustrated in FIG. 1. A single layer of fiber 46 is formed on a conveyor belt that carries a facing sheet 38. The fiber layer 46 is shaped and then heated in heater 32. The sheet 38 and fiber layer 46 are thereby bonded to one another, and the resulting

structure is then cut to length by knife 36. The resulting product 48 is shown in FIG. 3. In the alternative embodiment shown in FIG. 8, the fiber layer 46 is provided with two facing layers 38, 54. The resulting product is shown in FIG. 5.

Turning to FIG. 4, Meier prefers that the final product include multiple layers of insulation. (Col. 4, Lines 36-37). Therefore, Meier takes three separate faced blankets 46 and aligns them in a stacked face-to-face relationship **within a wrapper or sleeve of film 50.** (Col. 38-40). The ends of the film 50 terminate at 52 and are attached to the bottom of a faced blanket 48 by stitching or heat seal. (Col. 4, Lines 40-44). The sleeve or film is the only means by which the stacked products are secured to one another. FIG. 6 shows a product manufactured in the same manner as the product of FIG. 4, only using a stack of products as shown in FIG. 5 and with film 56 disposed on both sides of the stack to secure the insulation layers in the stack. FIG. 7 shows an embodiment where the facing sheets 54, 38 extend out beyond the insulation layers for attachment, in essence allowing layers 54 to replace the sleeve of FIGS. 4 and 6. (Col. 4, Lines 57-62).

Independent Claim 1 of the present application recites that the batt insulation product includes first and second insulation layers and that the at least one prefabricated flexible reinforcing non-woven non-woven tissue layer is "disposed **between and bonded directly to said insulation layers.**" Meier fails to teach or suggest the reinforcing layer being disposed between and bonded directly to said insulation layers.

FIG. 5 of Meier shows a stack of the products of FIG. 3. Each product includes a single facing layer 38 bonded directly to its own insulation layer 46. None of the layers 38 are directly bonded to more than one insulation layer 46. Rather, the individual products form a loose stack that is secured together only by a film 50 disposed partially around the stack.

Similar arguments apply to the structure of FIG. 6 of Meier. The product of FIG. 6 comprises a loose stack of products as shown in FIG. 5, which are secured together in the stack

using only film 56. None of the facing layers disposed between the insulation layers are bonded directly to two insulation layers.

It is submitted further that there is clearly no suggestion to bond the facing layers of Meier directly to multiple insulation layers. Indeed, Meier must use the sleeves or film to secure its insulation stack together for handling as a unit.

For at least these reasons, it is submitted that independent Claim 1 is not obvious from and is allowable over the cited reference. Claims 3-6, 8-9, 12, 15-16, 36, 41-43 and 51 depend from Claim 1 and are also allowable.

Claim 51, which depends from Claim 1, recites further that the at least one reinforcing layer is bonded to the insulations layers in part with said binder. In Meier, as described above, each facing layer is bonded to only one insulation layer. It is submitted, therefore, that Meier neither teaches nor suggests bonding a reinforcing layer to multiple insulation layers in part with the binder that bonds the fibers of the respective insulation layers together. For at least these additional reasons, it is submitted that Claim 51 is independently allowable over the cited reference.

Claim 12, which depends from Claim 51, also recites that the reinforcing layer is bonded to the insulation layers at least in part by the binder. For reasons analogous to those argued above in connection with FIG. 51, it is submitted that Claim 12 is independently allowable over the cited reference.

Independent Claim 49 also recites that the reinforcing layer is bonded to the multiple insulation layers at least in part with the binder. For reasons analogous to those set forth above in connection with Claims 1, 12 and 51, it is submitted that Claim 49 and Claim 50, which depends from Claim 49, are allowable over the cited reference.

The Action rejects Claims 15-16 and 41-42 as being obvious from Meier in view of U.S. Patent No. 5,848,509 to Knapp. These claims depend from Claim 1 and are, therefore, for at least the reasons set forth above in connection with Claim 1.

Per the foregoing arguments, reconsideration and withdrawal of the obviousness rejection of the claims are respectfully requested.

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III. Conclusion

In view of the foregoing remarks and amendments, Applicants submit that this application is in condition for allowance at an early date, which action is earnestly solicited.

The Commissioner for Patents is hereby authorized to charge any additional fees or credit any excess payment that may be associated with this communication to deposit account **04-1679**.

Respectfully submitted,

Dated: 8/15/06

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PRODUCT SPECIFICATION (TENTATIVE)*

* Specification subject to revision as more data becomes available

PRODUCT: 24# Manniglas® 1800

I. **CUSTOMER:** CertainTeed Insulation Group

II. **DESCRIPTION:** White Glass Tissue

III. **APPLICATION:** Residental Insulation Facing

IV. **PRODUCT SPECIFICATION:**

PROPERTY	UNIT	NOMINAL	SPECIFICATION	TEST METHOD
BASIS WEIGHT	LB/2880 FT^2	24	19.7 - 28.3	TAPPI T-410
	LB/100SQFT	0.833	.684 - .983	
	G/FT^2	3.78	3.10 - 4.46	
ASH **	%	70	65 - 75	**TAPPI T-1013
L.O.I.		30	25 - 35	
THICKNESS @ 7.3 psi	MILS	5.9	-	TAPPI T-411
LENGTH TENSILE	LB/IN	9	-	TAPPI T-494
CROSS TENSILE	LB/IN	3.3	-	TAPPI T-494
ROLL WIDTH	INCH	-	PER ORDER	-
WIDTH TOLERANCE	INCH	-	+/- 1/4	-
ROLL CONING	INCH	-	1/2 max.	-
ROLL DIAMETER	INCH	PER ORDER	48 max.	-
CORE DIAMETER	INCH	8"	-	-
LAP TYPE	-	-	Butt Type, With 3" 3M 901Tape	
NO. OF LAPS/ROLL	-	-	3 MAXIMUM	
LAP IDENTIFICATION	-	-	Flag All Laps	
PACKAGING	-	-	Stretch Wrap and Edge Protectors	

V. **LABELING REQUIREMENTS**

1) Vendor name (Lydall)
2) Product name / designation (24 LB MANNIGLAS 1800)
3) Roll width
4) Roll length
5) CertainTeed Raw Material Specification Number - (UNKNOWN)

NOTES:

**TAPPI T-1013 is a procedure for loss on ignition of fiber glass mats.
Ash = 100 - L.O.I.

Original Date: 9/26/03
Revision Date:

PRODUCT SPECIFICATION

PRODUCT: 24# Manniglas® 1801E

I. **CUSTOMER:** CertainTeed Insulation Group

II. **DESCRIPTION:** White Glass Tissue

III. **APPLICATION:** Duct Liner Facing

IV. **PRODUCT SPECIFICATION:**

PROPERTY	UNIT	NOMINAL	SPECIFICATION	TEST METHOD
BASIS WEIGHT	LB/2880 FT^2	24	19.7 - 28.3	TAPPI T-410
	LB/100SQFT	0.833	.684 - .983	
	G/FT^2	3.78	3.10 - 4.46	
ASH *	%	82	77.8 - 86.2	*TAPPI T-1013
L.O.I.		18	13.8 - 22.2	
THICKNESS @ 7.3 psi	MILS	6.6	-	TAPPI T-411
LENGTH TENSILE	LB/IN	6.5	-	TAPPI T-494
CROSS TENSILE	LB/IN	2.2	-	TAPPI T-494
ROLL WIDTH	INCH	-	PER ORDER	-
WIDTH TOLERANCE	INCH	-	+/- 1/4	-
ROLL CONING	INCH	-	1/2 max.	-
ROLL DIAMETER	INCH	PER ORDER	48 max.	-
CORE DIAMETER	INCH	8"	-	-
LAP TYPE	-	-	Butt Type, With 3" 3M 901Tape	
NO. OF LAPS/ROLL	-	-	3 MAXIMUM	
LAP IDENTIFICATION	-	-	Flag All Laps	
PACKAGING	-	-	Stretch Wrap and Edge Protectors	

V. **LABELING REQUIREMENTS**

1) Vendor name (Lydall)
2) Product name / designation (24 LB MANNIGLAS 1801E)
3) Roll width
4) Roll length
5) CertainTeed Raw Material Specification Number - #R490.30

NOTES:
*TAPPI T-1013 is a procedure for loss on ignition of fiber glass mats.
Ash = 100 - L.O.I.

Original Date: 9/26/03
Revision Date: